

REMARKS

In accordance with the foregoing, claims 38 and 46 are amended and new claims 72-74 are presented. Claims 68-70 are cancelled herein without prejudice or disclaimer. No new matter has been added and accordingly, entry and approval are respectfully requested.

Claims 38-40, 45, and 71-74 are pending and under consideration. Reconsideration is requested.

Claim Amendments

Independent claim 38 is amended herein to correct formalities. Claim 46 is amended herein to be rewritten in independent form. No new matter has been added and accordingly, entry and approval are respectfully requested.

Page 5: Allowable Subject Matter

On page 5 of the Office Action the Examiner indicates that dependent claims 46-48 recite allowable subject matter. Applicant thanks the Examiner for the indication of allowable subject matter. (Action at page 5, lines 3-5).

The Examiner objects to claims 46-48 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. (Action at page 5, lines 3-6).

Claim 46 is amended herein to include all of the limitations of the base claim, i.e., claim 38 and any intervening claims, i.e. claim 71.

Applicant respectfully points out that while the Examiner asserts the feature recited by claim 38 "closing of the electric circuit occurs even though the conductor element remains at a voltage in principle unknown, which will be forced by the electric circuit that is closed" ("limitation") is unclear (see, Action at page 2, lines 17-19) the Examiner has found claims 46-48 allowable and dependent on base claim 38. Thus, Applicant assumes that the Examiner has found allowable subject matter in claims 46-48 without the limitation and the limitation is not included in the amendment of claim 46 herein.

Claims 47-48 are dependent on claim 46 that is rewritten herein. Thus, withdrawal of the objection to claims 46-48 is requested.

Page 2: Rejection of claim 38 under 35 U.S.C. §112, second paragraph, as being indefinite

On page 2 of the Office Action, the Examiner rejects claim 38 under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner asserts:

[I]t is unclear what is being defined by the following claim limitation "wherein the closing of the electric circuit occurs even though the conductor element remains at a voltage in principle unknown".

(Action at page 2, lines 14-19).

Applicant respectfully submits that claim 38 as currently written is clear, definite, and complies with under 35 U.S.C. §112, second paragraph. Applicant points out that claim 38 recites a relay including ". . . a conductive element arranged in said intermediate space, said conductive element being a detached part for movement freely along the intermediate space between a first end of said intermediate space, defining a first zone, and a second end of said intermediate space, defining a second zone, said movement depending on voltages present in said first and second condenser plates, where said first condenser plate is arranged in said first zone and said second condenser plate is arranged in said second zone . . . a first contact point of an electric circuit, a second contact point of said electric circuit, in which said first and second contact points define first stops; . . . when said element contacts said first stops said conductive element closes said electric circuit, and wherein a closing of the electric circuit occurs even though the conductive element remains at a voltage in principle unknown, which will be forced by the electric circuit that is closed (emphasis added)."

That is, according to an embodiment of the invention, as recited in claim 38:

- the conductive element moves freely along the intermediate space, and
- the movement is depending on voltages present in said first and second condenser plates.

Thus, according to an embodiment of the invention "a closing of the electric circuit occurs e.g., depending on voltages present in first and second condenser plates regardless of a voltage of conductive element i.e., even though "the conductive element remains at a voltage in principle unknown." Support for the recitation is found, for example, on page 6, lines 2-6 and page 18, lines 32-33 of the specification.

Thus, Applicant submits claim 38 complies with 35 U.S.C. §112, second paragraph and the rejection should be withdrawn.

Traverse of Rejection of Claims 38-40, 45, and 71

On pages 3-5 of the Office Action, the Examiner rejects claims 38-40, 45, and 71 under 35 U.S.C. §103(a) as unpatentable over Feng et al. (U.S.P. 6,143,997) in view of Sun (U.S.P. 6,307,452). The rejection is traversed.

Applicant submit that none of the art relied on by the Examiner, alone or in *arguendo*

combination teach features recited by independent claim 38, for example. Claim 38 recites a miniaturized relay comprising:

- a) "a first condenser plate;"
- b) "a second condenser plate facing said first condenser plate, in which said second plate is smaller than or equal to said first plate;"
- c) "an intermediate space;"
- d)"a conductive element arranged in said intermediate space, said conductive element being a detached part for movement freely along the intermediate space between a first end of said intermediate space, defining a first zone, and a second end of said intermediate space, defining a second zone, said movement depending on voltages present in said first and second condenser plates, where said first condenser plate is arranged in said first zone and said second condenser plate is arranged in said second zone;"
- e)"a third condenser plate arranged in said second zone, in which said third condenser plate is smaller than or equal to said first condenser plate, and in which said second and third condenser plates are, together, larger than said first condenser plate;" and
- f)"a first contact point of an electric circuit, a second contact point of said electric circuit, in which said first and second contact points define first stops;"
- g)"wherein, when said element contacts said first stops said conductive element closes said electric circuit," and
- h)"wherein a closing of the electric circuit occurs even though the conductive element remains at a voltage in principle unknown, which will be forced by the electric circuit that is closed."

The Examiner asserts that Feng's disclosure of a conductive pad 17 teaches:

a "conductive element arranged in said intermediate space, said conductive element being a detached part for movement freely along the intermediate space between a first end of said intermediate space, defining a first zone [the top, see figure 3b, where 17 located].

(Action at page 3).

While, the Action concedes that Feng does not teach a break in a conductive element, the Examiner asserts Sun teaches:

an electric circuit [18] with a first contact point of an electric circuit [figure 3, top half of 18], a second contact point [figure 3, bottom half of 18] of said electric circuit, in which said first and second contact points define first stops [figure 5b], wherein, when said element contacts said first stops said conductive element closes said electric circuit [figure 5b]. . . .obvious.... to change the signal line architecture of Feng et al. from a shunt switch to a single pull single throw switch as shown by Sun in order to have a switch which is normally closed instead of

normally open.

(Action at page 4).

Applicant submits that neither Feng nor Sun, alone nor in *arguendo* combination, teach a relay "wherein a closing of the electric circuit occurs even though the conductive element remains at a voltage in principle unknown, which will be forced by the electric circuit that is closed," as recited by claim 38. By contrast, Feng merely teaches:

[A] conductive pad 17 is moveably positioned to contact both the signal line 16 and the ground planes 12 when the pad is in the relaxed position (FIG. 3A). . . the input RF signal enters from an input port 16a (shown best in FIGS. 4-6), flows through the pad 17, and then flows to ground by the ground planes 12. . . . Preferably, a thin dielectric layer 18 is positioned between the signal line 16 and the metal pad 17 to serve as a DC blocking capacitor. . . . To guide movement of the pad 17, the pad 17 is slidably positioned with brackets 22.

(Emphasis added, See, for example col. 3, lines 40-67).

Feng further teaches:

The conductive pad 17 is attracted upward when a small voltage, e.g., less than 3 Volts, is applied to top electrodes 30 (FIG. 3B). . . . When the pad 17 is in the excited position (contacts open), RF signals flow unimpeded from the input port 16a to the output port 16b through signal line 16, as shown by the arrows, with only a negligible loss to the signal. In a preferred embodiment, this position corresponds to the switch on state. Thus, unlike known switches, the present switch is on when electrical contact is disengaged. . . . the present invention operates in either a normally on or in a normally off mode by applying DC voltage to either side of an actuation pad.

(see, for example, col. 4, lines 28-45).

Further, Feng teaches

a contact area of the signal line 16 and metal pad 17 should be as large as possible to gain a wider operation bandwidth and lower impedance at high frequency regime.

(See, for example, col. 5, lines 28-30).

That is, Feng teaches a conductive pad 17, *arguendo* conductive element, that requires that a conductive element is at a known and pre-established voltage. Feng discloses such a requirement through the use of brackets 22 with the conductive pad 17 sliding along the brackets 22 and in electrical contact with them.

That is, Feng does not teach a relay in which a closing of the electric circuit occurs even though the conductive element remains at a voltage in principle unknown, which will be forced by the electric circuit that is closed, as recited by claim 38.

By contrast, Sun teaches

In operation, switch 10 is normally in a "off" position as shown in FIG. 5a. When the switch 10 is in the "off" position, the signal line 18 is an open circuit due to gap

21 and the separation of the signal lines 18. The switch 10 is actuated to an "on" position by applying a voltage to the top electrode 16. With a voltage on top electrode 16, electrostatic forces attract the platform 20 toward the bottom electrode 14 causing the shorting bar 34 with the contact post 32 to thereby close the gap 21 and place the signal line 18 in the "on" state as illustrated in FIG. 5b. In a preferred environment, the contact posts 32 are extended to a greater height than the bottom electrodes 14 on the signal line 18 thus leaving a relatively smaller gap between the contact post 32 and the shorting bar 34 as illustrated in FIG. 5a. In the "on" position, the platform 20 moves toward the substrate and the shorting bar 34 makes contact with the underlying fixed contact post 32 to produce the low resistance switch on signal as illustrated in FIG. 5b. As the platform is switched on, the landing bumpers 26 support the platform 20 and only a small physical contact area is made between the platform 20 and the bottom electrodes 14.

(See, for example, col. 4, line 54 - col. 5, line 8).

That is, Sun contact points of which the voltage is known, and not where "a closing of the electric circuit occurs even though the conductive element remains at a voltage in principle unknown, which will be forced by the electric circuit that is closed," as recited by claim 38.

Thus, even an *arguendo* combination of Feng and Sun does not teach features recited by claim 38.

Applicant submits this traversal meets the Consideration of Applicant's Rebuttal Evidence Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.* of October 3, 2007 and the elements in combination do not merely perform the function that each element performs separately, and the results of the claimed combination were unexpected.

Summary

Since features recited by independent claim 38 (and dependent claims 39-40 and 45) are not taught by even a combination of the art relied on by the Examiner, the rejection should be withdrawn and claims 38 40 and 45 allowed.

New Claims

New claims 72-74 recite features of the present invention in a different fashion. New dependent claim 72 recites a relay "the closing of the electric circuit occurring even though the conductive element remains at a voltage in principle unknown since said conductive element being not in electrical contact with its surroundings when moving across said intermediate space."

New dependent claim 73 recites a relay including "the conductive element being not in electrical contact with walls that define said intermediate space when moving across said

intermediate space."

New claim 74 recites a relay including "a first condenser plate in a first zone; a second condenser plate and a third condenser plate in a second zone; and a conductive element capable of freely moving along an intermediate space between a first end of said intermediate space and defining the first zone and a second end of said intermediate space defining the second zone and not in electrical contact with walls that define the intermediate space when moving, the movement of the conductive element depending on voltages present in the first and second condenser plates, and the conductive element being.

Support for new claims 72-74 is found, for example, of the specification. No new matter has been added and accordingly, entry and approval are respectfully requested.

These, and other, features of claims 72-74 are submitted to be allowable for the recitations therein.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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